

What is claimed is:

1. An on-channel repeating apparatus for repeating a signal over an on-channel, the on-channel repeating apparatus comprising:

5 a receiving unit for receiving a Radio Frequency (RF) broadcast signal;

a demodulating unit for converting the RF signal into a baseband signal;

10 an equalizing unit for equalizing the baseband signal to generate an equalized baseband signal;

a modulating unit for converting the equalized baseband signal into an RF signal; and

a transmitting unit for transmitting the RF signal.

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2. The on-channel repeater as recited in claim 1, wherein the demodulating unit includes:

a frequency down-converting unit for converting the received RF broadcast signal into an intermediate frequency (IF) signal based on a first reference frequency; and

20 a demodulating unit for converting the converted IF signal into a baseband signal.

3. The on-channel repeater as recited in claim 1, wherein the modulating unit includes:

25 a modulating unit for converting the baseband signal outputted from the equalizing unit, into an IF signal; and

a frequency up-converting unit for converting the IF signal into a RF broadcast signal based on a second reference frequency.

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4. An on-channel repeating method of repeating a signal over an on-channel, the on-channel repeating method comprising the steps of:

35 a) receiving a Radio Frequency (RF) broadcast signal;

- b) converting the RF signal into a baseband signal;
- c) equalizing the baseband signal to generate an equalized baseband signal;
- d) converting the equalized baseband signal into an RF
- 5 signal; and
- e) transmitting the RF signal.

5. The on-channel repeating method as recited in claim 4, wherein said step b) includes the steps of:

10 converting the received RF broadcast signal into an intermediate frequency (IF) signal based on a first reference frequency; and

demodulating unit for converting the converted IF signal into a baseband signal.

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6. The on-channel repeating method as recited in claim 4, wherein said step d) includes the steps of:

converting the baseband signal outputted from the equalizing unit, into an IF signal; and

20 converting the IF signal into a RF broadcast signal based on a second reference frequency.